

Remarks

Claims 36-54 are in the application, Reconsideration and re-examination are respectfully requested.

1. Informalities

A typographical error at page 15, line 18, resulted in omission of the word "meters", and insufficient support is found in the specification for the claim that: "a multiplicity of nanoparticles... [are] each less than 33% the diameter of the core particles, of photocatalytic material upon the surface of the core particle, the photocatalytic material being less than 20% by weight of (i) the combined multiplicity of photocatalytic material nanoparticles and (ii) the core particle" (claim 1). Page 15 is amended at paragraph 83.

Support for all amendment is found within the claims of the application as filed. The claims are part of the teaching a a patent application, See the MPEP. No new matter is added.

2. Claim Rejections Under 35 USC 112, Second Paragraph

Claims 38-40, 42, 43, 50 and 54 are rejected under 35 USC 112, Second Paragraph to add support

Claims 36, 38-40, 42-44, 50, 51 and 54 are amended; meaning the all claims rejected under 35 USC 112, Second Paragraph.

Namely, claims 38-40, 42 and 43 – and also claims 44 and 51 – are amended to (1) improve the Markush groups claimed, and (2) create a strict hierarchy where no "lower-level" feature of limitation within any claim is claimed more broadly than is a 'higher'level" feature of which said 'lower-level" featrue is a claimed part.

The term "construction aggregates" is deleted from claim 38.

The final member of the mrkush group of claim 40 is linked by the word "and".

Although claim 50 is amended to delete the word "great" found indefinite, the rejection that the claim is indefinite (under 35 USC 112, Second Paragraph) because the claim preamble sets forth a structure or body that is less than the claimed composition is respectfully traversed. Claim 50 specifies: A multiplicity of composite bodies in accordance with claim 36" that are "incorporated in amount from 0.001% to 85% by volume within a composition suitable for use as an additive to a coating or a coating." A use for the composite bodies, or at least a multiplicity thereof, is thereby claimed, and the composite bodies themselves are neither altered nor limited by this claimed use, nor by the volume amount(s) in which they are present in the claimed use.

In claim 54 "composite particle" is amended to –composite body–.

3. Claim Rejections Under 35 USC 102/103

Claims 36-54 are rejected under 35 USC 102(e), or, alternatively, 103(a) in consideration of the reference art of Dettling, et al.

The rejection is respectfully traversed. The Examiner states that "Dettling teaches a composite particle comprising a core particle and a coating of catalytic nanoparticles...." (page 5, section 7, second paragraph).

In fact, Dettling does not so teach, nor suggest, any "coating of **catalytic** nanoparticles" (boldface added). Dettling teaches only a catalyst composition comprising a **non-catalytic** nanoparticle coating on a **non-catalytic** substrate where this composite forms a high surface area receptor for a **catalytic** metal coating. Dettling forms from substrates and nanoparticles only a base for a catalytic "washcoat". See, for example, sentences 1 and 2 of the Summary of the Invention section at column 2, line 62, et seq.:

"a catalyst composition including a component produced as a sol containing fine particle metal oxides secured to support particles having a larger particle size. **A catalytically active metal is deposited on the fine particles or on the support or both....**) (Boldface added)

In so teaching that the catalytically active metal is deposited on the fine particles

(Applicant's nanoparticle), or on the support (Applicant's body", or both, Dettling . Et al. Arguably teaches away from Applicant's claimed structure where:

"...a core particle consisting of a material without deleterious effect on a photocatalytic reaction... [is combined with] a multiplicity of nanoparticles... of photocatalytic material" (claim 38).

Further, Dettling says nothing about photocatalysts. It is not clear from the Dettling patent that photocatalytic nanoparticles on a core particle would be useful for any of killing microorganisms, U.V. blocking, fire retardency, and dye solar cells.

Lastly, Dettling discusses the use of binders, surfactants, thickener, biocides, antioxidants and the like in the formation of his composite particle because it would not affect the performance of his catalytic metal coating, **but these things can impair the activity of a photocatalytic composite particle.**

None of the additional art of reference does anything to overcome the deficiency of the prior art reference of Dettling to teach or suggest Applicant's claimed multiplicity of **photocatalytic nanoparticles upon a core particle that is non-deleterious to photocatalytic reactions.**

Applicant does **not** wish to present an argument to an issue not yet reached, and possibly never to be reached. But **should** rejection of the claims continue, seemingly necessarily on the basis of new art, **then** the Examiner should also be sensitive to Applicant's dependent claim 42, and also claim 43 dependent upon claim 42 (which claim 42 is itself dependent upon claim 36). That is, should the Examiner yet locate prior art teaching or suggesting multiple photocatalytic nanoparticles upon a core particle, Applicant advances that his claims 42 and 43 are of independent patentable distinction.

Now there **does** exist a body of work on applying **catalytic** metal compounds to carrying agents (including metal oxide carrying agents). And there is **also** some work that applies metals to **photocatalysts** (like platinum to titanium dioxide). But regard what Applicant claims: application of photocatalytic nanoparticles in the form of "metal compound semiconductors" (claim 42) to "metals or metal compounds" (claim 43). Note that the smaller constituent components – the "anoparticles" – are the "semiconductors".

So, if the Examiner locates prior art regarding photocatalytic metal semiconductors, and metals, the Examiner should be alert to note just what is applied to what, and which is the smaller particle and which is the larger. Applicant's claims 42 and 43 -- directed to the improvement of photocatalytic action realized by Applicant's composite particle -- set forth a composite particle that is **opposite** to what Applicant generally understands to be the state of the prior art in combining (1) photocatalytic semiconductor metals and (2) metals or metal compounds. To repeat what was stated in the above paragraph, some prior art shows applying **catalytic** metal compounds to carrying agents (including metal oxide carrying agents), and some shows applying metals to **photocatalysts** (like platinum to titanium dioxide). But Applicant believes that he alone applies photocatalytic semiconductors in small, nanoparticulate, form to metals!

4. Summary

Each of the basis for rejection within the Office Action has been discussed. No new matter has been added.

Applicant's undersigned attorney is at the Examiner's disposal should the Examiner wish to discuss any matter which might expedite prosecution of this case.

Please continue to note the change to the primary phone numbers of Applicant's undersigned representative.

Sincerely yours,



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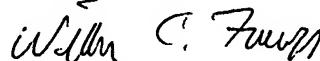
Attorney of Record
 Filed Under 37 CFR §1.34(a)

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this AMENDMENT and the documents referred to as attached therein are being deposited as first class mail with the United States Postal Service in an envelope with postage prepaid addressed to the: Mail Stop Patent NON-FEE Amendments, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date written below.

September 5, 2008
Date

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